General

Guideline Title

Recommendations for prevention of weight gain and use of behavioural and pharmacological interventions to manage overweight and obesity in adults in primary care.

Bibliographic Source(s)

Brauer P, Connor Gorber S, Shaw E, Singh H, Bell N, Shane AR, Jaramillo A, Tonelli M, Canadian Task Force on Preventive Health Care. Recommendations for prevention of weight gain and use of behavioural and pharmacologic interventions to manage overweight and obesity in adults in primary care. CMAJ. 2015 Feb 17;187(3):184-95. [52 references] PubMed

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Douketis JD, Canadian Task Force on Preventive Health Care, Feightner JW, Attia J, Feldman WF. Periodic health examination, 1999 update: 1. Detection, prevention and treatment of obesity. CMAJ. 1999 Feb 23;160(4):513-25. [128 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Recommendations

Major Recommendations

The grades of recommendations (strong, weak) and grades of evidence (high, moderate, low, very low) are defined at the end of the "Major Recommendations" field.

Summary of Recommendations for Clinicians and Policymakers

Measurement of Body Mass Index (BMI)

This recommendation applies to adults (≥18 years) presenting to primary care. These recommendations do not apply to people with eating disorders or who are pregnant.

- The Task Force recommends measuring height, weight and calculating BMI* at appropriate† primary care visits. (Strong recommendation; very low-quality evidence)

Prevention of Weight Gain

This recommendation applies to apparently healthy adults (≥18 years) who present to primary care. The recommendation does not apply to

people with eating disorders, or who are underweight, pregnant, overweight or obese (BMI ≥25).

- The Task Force recommends that practitioners not offer formal, structured interventions[‡] aimed at preventing weight gain in normal-weight adults.[§] Adults who are overweight or obese may be candidates for weight-loss treatment. (Weak recommendation; very low-quality evidence)

Management of Overweight and Obesity

These recommendations apply to adults (≥18 years) who are overweight or obese (BMI 25–39.9). Pregnant women and people with health conditions where weight loss is inappropriate are excluded. These guidelines do not apply to people with a BMI of 40 or greater, who may benefit from specialized bariatric programs.

- For adults who are obese (BMI 30–39.9) and are at high risk of diabetes,[¶] the Task Force recommends that practitioners offer or refer to structured behavioural interventions[‡] aimed at weight loss. (Strong recommendation; moderate-quality evidence)
- For adults who are overweight or obese, the Task Force recommends that practitioners offer or refer to structured behavioural interventions[‡] aimed at weight loss. (Weak recommendation; moderate-quality evidence)
- For adults who are overweight or obese, the Task Force recommends that practitioners not routinely offer pharmacologic interventions (orlistat or metformin) aimed at weight loss.** (Weak recommendation; moderate-quality evidence)

*BMI categories are as follows: underweight (BMI <18.5); normal weight (BMI 18.5–24.9); overweight (BMI 25.0–29.9); obese (BMI ≥30).

[†]Appropriate visits include wellness visits, visits for medication renewal and other visits where the primary care practitioner deems it appropriate.

[‡]Formal structured interventions are behavioural modification programs that involve several sessions or interactions that take place over weeks to months. Interventions examined for prevention of weight gain included behaviourally based prevention interventions focused on diet, increasing exercise, making lifestyle changes or any combination of these. These could be offered in primary care settings or settings where primary care practitioners may refer patients, such as credible commercial or community programs. Recommended interventions for management of overweight and obesity include intensive behaviourally based interventions focused on diet, increasing exercise, making lifestyle changes or any combination of these. Lifestyle interventions generally included counselling, education or support, and/or environmental changes in addition to changes in exercise and/or diet.

[§]Practitioners should use their judgment in determining whether some individuals may benefit from being offered or referred to interventions for weight-gain prevention, such as individuals with metabolic risk factors, high waist circumference, or family history of type 2 diabetes or cardiovascular disease. For adults who express concerns about weight gain or who are motivated to make lifestyle changes, practitioners should also consider offering or referring to prevention interventions and must help each person arrive at a management decision consistent with his or her values and preferences.

[¶]High-risk status is defined by a 10-year risk of diabetes of 33% or greater, which can be assessed using the CANRISK (Canadian Diabetes Risk) or FINDRISC (Finnish Type 2 Diabetes Risk Score) risk assessment tools.

**The Task Force examined the use of metformin and orlistat for weight loss only and not for the treatment of other conditions, such as diabetes.

Definitions:

Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group Grades of Evidence

High quality — Further research is very unlikely to change confidence in the estimate of effect.
Moderate quality — Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate.
Low quality — Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate.
Very low quality — The Task Force is very uncertain about the estimate.

Grading of Recommendations

- Strong recommendations are those for which the Task Force is confident that the desirable effects of an intervention outweigh its undesirable effects (strong recommendation for an intervention) or that the undesirable effects of an intervention outweigh its desirable effects (strong recommendation against an intervention). A strong recommendation implies that most people will be best served by the recommended course of action.
- Weak recommendations are those for which the desirable effects probably outweigh the undesirable effects (weak recommendation for an intervention) or undesirable effects probably outweigh the desirable effects (weak recommendation against an intervention) but appreciable uncertainty exists. A weak recommendation implies that most people would want the recommended course of action, but many would not. For clinicians, this means they must recognize that different choices will be appropriate for each individual, and they must help each person arrive at a management decision consistent with his/her values and preferences. Policy-making will require substantial debate and

involvement of various stakeholders. Weak recommendations result when the balance between desirable and undesirable effects is small, the quality of evidence is lower, and there is more variability in the values and preferences of patients.

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

Overweight and obesity

Guideline Category

Management

Prevention

Risk Assessment

Screening

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Nurses

Physician Assistants

Physicians

Public Health Departments

Guideline Objective(s)

To provide evidence-based recommendations for structured interventions aimed at preventing weight gain in adults of normal weight and to provide recommendations for behavioural and pharmacologic interventions for weight loss to manage overweight and obesity in adults, including those at risk of type 2 diabetes

Target Population

- Apparently healthy adults ≥18 years who present to primary care providers
- Adults ≥18 years who are overweight or obese (body mass index [BMI] 25–39.9)

Note: See the "Major Recommendations" field for populations not included for specific recommendations.

Interventions and Practices Considered

1. Measurement of height and weight, and calculation of body mass index (BMI) at appropriate primary care visits
2. Structured behavioural interventions aimed at weight loss for adults who are overweight or obese (BMI 25-39.9)

Note: The following interventions were considered but not recommended:

Formal, structured interventions aimed at preventing weight gain in normal-weight adults
Routine use of pharmacologic interventions (orlistat or metformin) for weight loss

Major Outcomes Considered

- Weight loss or weight maintenance (i.e., weight in kilograms, body mass index [BMI], waist circumference, total percentage of body fat)
- Total cholesterol
- Low-density lipoprotein cholesterol (LDL-C)
- Fasting glucose
- Incidence of type 2 diabetes
- Systolic blood pressure (SBP) and diastolic blood pressure (DBP)

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Searches of Unpublished Data

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): The Task Force reviewed primary evidence and commissioned two additional systematic reviews to support the guideline. The additional systematic reviews were prepared by the McMaster Evidence Review and Synthesis Centre Team (see the "Availability of Companion Documents" field).

Prevention of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses

Search Strategy

For the key and supplemental questions the review team searched EMBASE, MEDLINE, Cochrane Central Register of Controlled Trials, and PsycINFO from January 1980 to June 27, 2013 using terms such as *obesity prevention, health promotion, primary prevention, weight control, weight maintenance, behavior therapy, diet, exercise, fitness* and *lifestyle*. Reference lists of the included studies of this review and the included studies of other on topic reviews were searched for relevant studies not captured by their search. A separate search was conducted to look for evidence that would answer the contextual questions; this strategy included three databases (MEDLINE, EMBASE, PsycINFO) and covered the period between January 2007 and August 16, 2013. The full search strategies are provided in Appendix 1 in the systematic review. In addition, a focused grey literature search of Canadian sources was undertaken for recent reports on obesity in Canada. All citations were uploaded to a web-based systematic review software program for screening and data extraction.

Study Selection

Titles and abstracts of papers considered for the key question and subquestions were reviewed in duplicate; articles marked for inclusion by either team member went on to full text screening. Full text inclusion was done independently by two people. All disagreements were resolved through discussions rather than relying on a particular level of kappa score to indicate when discussions were no longer necessary. The inclusion results were reviewed by a third person. For papers located in the contextual questions search, title and abstract screening was done by one person.

Inclusion and Exclusion Criteria

See Chapter 2 in the systematic review for details of the inclusion and exclusion criteria, including language, populations, interventions, settings, comparator and study design, outcome and timeframe.

Results

The search and selection process for relevant literature occurred in three stages. The initial comprehensive search (including both adults and children) located 30,196 unique citations (see Figure 2 in the systematic review). These citations were reviewed for title and abstract relevance and were filtered for population (adult or child) and intervention focus (prevention or treatment). A total of 10,914 were excluded at this first level of relevance screening. There were 11,183 citations streamed for adult populations and 8,099 citations streamed for children (further information regarding child-related citations is reported in the child obesity treatment and child obesity prevention reviews available on the Canadian Task Force on Preventive Health Care [CTFPHC] website http://canadiantaskforce.ca/).

The second stage involved another round of title and abstract screening and streaming of the 11,183 citations related to adults. At this level 6,711 citations were excluded and 1,152 citations remained for consideration as treatment interventions (these results are further delineated in the adult obesity treatment review below) and 3,320 citations remained for consideration as prevention interventions.

Finally, the literature search was updated in June 2013. This updated search was adapted from the original search and any terms referring to children were removed. That search added an additional 1,778 citations for possible inclusion. Another level of title and abstract screening was undertaken where an additional 3,922 citations were excluded. At this point two studies were integrated from the 2011 U.S. Preventive Services Task Force (USPSTF) review that met the definition of a mixed weight population and 13 hand-search located citations for consideration. Full text screening took place on 1,191 citations and 981 were excluded (see list of excluded studies [see the "Availability of Companion Documents" field]).

One hundred and sixty-two systematic reviews were identified by the review team. Upon further examination 51 of these systematic reviews were found to be specific to overweight/obese populations and were excluded. The reference lists of recent (published in 2012 and 2013) and on topic systematic reviews were searched to ensure that the team had not missed any relevant studies. Five studies were located in those reference lists that were not found through the database search.

Treatment of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses and Supplementary Report

Search Strategy

For this review the review team updated the search conducted for the 2011 USPSTF review. For the key and supplemental questions, MEDLINE, Cochrane Central Register of Controlled Trials, PsycINFO and EMBASE were searched from September 2010 (the date of the last USPSTF search) to April 19, 2013, using terms such as *overweight, obesity, diet, exercise, behavioural, counseling, lifestyle, orlistat,* and *metformin*. Reference lists of the included studies of this review and the included studies of other on topic reviews were searched for any relevant studies that were not captured by the search. A separate search was conducted to look for evidence that would answer the contextual questions; this strategy included three databases (MEDLINE, EMBASE, PsycINFO) and covered the period between January 2007 and August 16, 2013. The full search strategies are provided in Appendix 1 in the systematic review. In addition, a focused grey literature search of Canadian sources was undertaken for recent reports on obesity in Canada. All citations were uploaded to a web-based systematic review software program for screening and data extraction.

Study Selection

Titles and abstracts of papers considered for the key question and subquestions were reviewed in duplicate; articles marked for inclusion by either team member went on to full text screening. Full text inclusion was done independently by two people. All disagreements were resolved through discussions rather than relying on a particular level of kappa score to indicate when discussions were no longer necessary. The inclusion results were reviewed by a third person. For papers located in the contextual questions search, title and abstract screening was done by one person.

Inclusion and Exclusion Criteria

See Chapter 2 in the systematic review for details of the inclusion and exclusion criteria, including language, populations, interventions, settings, comparator and study design, outcome and timeframe.

Results

The search and selection process for relevant literature occurred in three stages. The initial comprehensive search (including both adults and children) located 30,196 unique citations (see Figure 2 in the systematic review). These citations were reviewed for title and abstract relevance and were filtered for population (adult or child) and intervention focus (prevention or treatment). A total of 10,914 were excluded at this first level of relevance screening. There were 11,183 citations streamed for adult populations and 8,099 citations streamed for children (further information regarding child-related citations is reported in the child obesity treatment and child obesity prevention reviews available on the CTFPHC website http://canadiantaskforce.ca/).

The second stage involved another round of title and abstract screening and streaming of the 11,183 citations related to adults. At this level 6,711 citations were excluded and 3,320 citations remained for consideration as prevention interventions (see above) and 1,152 citations remained for consideration as treatment interventions.

Finally, the literature search was updated in April 2013. This updated search was adapted from the original search and any terms referring to children were removed. That search added an additional 2,348 citations for possible inclusion. Another round of title and abstract screening was undertaken where an additional 3,226 citations were excluded. To the remaining search yield the review team added all studies included in the meta-analyses in the 2011 USPSTF review (50 studies with 70 papers) as well as 14 citations located by hand search for consideration. Full text screening took place on 358 citations and 141 were excluded (see list of excluded studies [see the "Availability of Companion Documents" field]).

One hundred systematic reviews were identified by the team members. The reference lists of on topic systematic reviews were searched to ensure that the team had not missed any relevant studies. No additional studies were located in those reference lists.

Methods for Supplementary Report

Methods were identical with the exception of the inclusion of papers that randomized people to weight maintenance interventions following initial successful weight loss.

Number of Source Documents

Prevention of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses

At the end of the search and selection process, 26 studies with 48 papers met the inclusion criteria for this review and were used as data sources for the key questions. See Figure 2 in the systematic review for a flow diagram of the search results (see the "Availability of Companion Documents" field).

Treatment of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses and Supplementary Report

At the end of the search and selection process, 68 studies with 117 papers met the inclusion criteria for this review. This total includes 36 studies brought forward from the 2011 U.S. Preventive Services Task Force (USPSTF) review that met the inclusion criteria, and 32 studies found in the more recent literature.

For the supplementary report, the search for the adult obesity reviews found eight studies (11 papers) concerning weight maintenance interventions following weight loss.

See Figure 2 in the systematic review and Figure 1 in the supplementary report for flow diagrams of the search results.

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group Grades of Evidence

High quality — Further research is very unlikely to change confidence in the estimate of effect.
Moderate quality — Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate.
Low quality — Further research is very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate.
Very low quality — The Task Force is very uncertain about the estimate.

Methods Used to Analyze the Evidence

Meta-Analysis

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): The Task Force reviewed primary evidence and commissioned two additional systematic reviews to support the guideline. The additional systematic reviews were prepared by the McMaster Evidence Review and Synthesis Centre Team (see the "Availability of Companion Documents" field).

Prevention of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses

Data Abstraction

For each study used to answer the key question (KQ), review team members extracted data about the population, study design, intervention, analysis and results for outcomes of interest. For each study one team member completed full abstraction (study characteristics, risk of bias assessment, outcome data) using electronic forms housed in a web-based systematic review software program. A second team member verified all extracted data and ratings; disagreements were resolved through discussion and/or third party consultation when consensus could not be reached. Prior to performing meta-analyses, tables were produced for each outcome and all data were checked in a third round of verification.

Unadjusted immediate post assessment data was extracted for most studies. However, for a small number of studies the immediate post intervention data did not meet the minimum 12 months post baseline assessment criterion; in these cases team members extracted data at the point closest to the end of the intervention that was ≥12 months post baseline (e.g., intervention duration six months, follow-up six months later). Another small group of studies reported interim results for longer term interventions. Since there was no condition that interventions must be completed to be included in this review, this interim data were extracted.

To answer the adverse effects KQ the review team selected the more inclusive option and looked for data for all reported adverse events of interest, regardless of whether they were attributed to study participation.

Assessing Risk of Bias

Arriving at a Grading of Recommendations Assessment, Development and Evaluation (GRADE) rating for a body of evidence requires a preliminary assessment of the risk of bias or study limitations for the individual studies. All randomized controlled trials (RCTs) included to answer the KQ of this review were assessed using the Cochrane Risk of Bias tool.

This rating tool covers six domains: sequence generation; allocation concealment; blinding of participants, personnel and outcome assessors; incomplete outcome reporting; selective outcome reporting; and other risk of bias. A few adjustments were made for the purpose of this review: the review team separated their assessment of blinding of participants and personnel from the assessment of blinding of outcome assessors; they considered objective (total cholesterol, low-density lipoprotein cholesterol [LDL-C], fasting blood glucose, incidence of type 2 diabetes), subjective (weight, blood pressure, adverse effects) and self-report (weight, adverse effects) outcomes separately under the domains of blinding of outcome assessors and incomplete outcome reporting; the Task Force selected study funding, baseline imbalance and selection bias as the three main sources of other risk of bias; and they added an overall risk of bias rating specific to outcome group (objective, subjective, self-report).

Information to determine risk of bias was abstracted from the primary methodology paper for each study and any other relevant published papers. For each study, one team member completed the initial ratings, which were then verified by a second person; disagreements were resolved through

discussion and/or third party consultation when consensus could not be reached. To assign a high or low risk of bias rating for a particular domain the review team looked for explicit statements or other clear indications that the relevant methodological procedures were or were not followed. In the absence of such details they assigned unclear ratings to the applicable risk of bias domains. To determine the overall risk of bias rating for an outcome group they considered all domains, however greater emphasis was placed on the assessments of first three areas of randomization, allocation, and blinding of outcome assessment.

Table 3 in the systematic review summarizes the risk of bias ratings applied to the RCTs included in this review.

Assessing Strength or Quality of the Evidence

The strength of the evidence was determined based on the GRADE system of rating the quality of evidence using GRADEPro software. The GRADE system rates the quality of a body of evidence as high, moderate, low or very low; each of the four levels reflects a different assessment of the likelihood that further research will impact the estimate of effect (see the "Rating Scheme for the Strength of the Evidence" field).

A GRADE quality rating is based on an assessment of five conditions: (1) risk of bias (limitations in study designs); (2) inconsistency (heterogeneity) in the direction and/or size of the estimates of effect; (3) indirectness of the body of evidence to the populations, interventions, comparators and/or outcomes of interest; (4) imprecision of results (few participants/events/observations, wide confidence intervals); and (5) indications of reporting or publication bias. Grouped RCTs begin with a high quality rating which may be downgraded if there are serious or very serious concerns across the studies related to one or more of the five conditions. For this review, key data were entered into the GRADEPro software along with the quality assessment ratings to produce two analytic products for each outcome and the comparisons of interest: (1) a GRADE Evidence Profile Table and (2) a GRADE Summary of Findings Table (presented in Evidence Sets 1 to 11 in the systematic review).

There was no assessment of the quality of the evidence used to answer the contextual questions.

Data Analysis

To perform meta-analyses, immediate post treatment data (means, standard deviations) were utilized for continuous outcomes such as change in weight in kg, body mass index (BMI) and waist circumference while number of events data were utilized for binary outcomes (i.e., incidence of type 2 diabetes). The DerSimonian and Laird random effects model with inverse variance (IV) method was utilized to generate the summary measures of effect in the form of mean difference (MD) for continuous outcomes and risk ratio (RR) for binary outcomes. The random effects model assumes the studies are a sample of all potential studies and incorporates an additional between-study component to the estimate of variability.

MDs were calculated using change from baseline data (i.e., mean difference between pre-treatment [baseline] and post-treatment [final/end-point] values along with its standard deviation [SD] for both intervention and control groups). For studies that did not report SD, the review team calculated this value from the reported standard error (SE) of the mean, or from the 95% confidence intervals (CI) using equations provided in Chapter 9 of the *Cochrane Handbook for Systematic Reviews of Interventions*. For studies that provided neither SD nor SE for the follow-up data, the review team imputed the SD from either the baseline values or other included studies of similar sample size and for the same outcome. If weight was reported in pounds, values were converted to kg. Similarly, the units of measurement for total cholesterol, LDL-C and fasting glucose, if reported in mg/dL, were converted to Canadian standard units (i.e., mmol/L).

Reviewers used I^2 statistic to quantify statistical heterogeneity between studies, where $P<0.05$ indicates a high level of statistical heterogeneity between studies. Although there are no strict rules for interpreting I^2 a rough guide is that an $I^2>50\%$ may represent substantial heterogeneity.

Sensitivity analyses were performed to evaluate statistical stability and effect on statistical heterogeneity. The sub-group analyses, based on type of intervention (diet, exercise, diet plus exercise, lifestyle), length of intervention (≤12 months, >12 months), gender, participants' baseline cardiovascular disease (CVD) risk status (high risk: identified as having CVD risk factors and/or diagnosed with type 2 diabetes, hypertension, dyslipidemia; low/unknown CVD risk), and study risk of bias rating (high, unclear, low) were performed for weight in kg because this was an outcome that most of the studies reported and, to be consistent, this was the outcome used for sensitivity analyses in the companion review on treatment. One additional sub-group analysis was performed based on baseline mean BMI (<25, ≥25) for the outcome of change in BMI.

Meta-analyses were performed using Review Manager version 5.1. Publication bias for each outcome (with sufficient studies) was assessed with the Egger's test using STATA version 12.

Refer to Chapter 2 in the systematic review for more information on data analysis.

Treatment of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses and Supplementary Report

Data Abstraction

For each study used to answer the KQ, review team members extracted data about the population, study design, intervention, analysis and results for outcomes of interest. For each study one team member completed full abstraction (study characteristics, risk of bias assessment, outcome data) using electronic forms housed in a web-based systematic review software program. A second team member verified all extracted data and ratings; disagreements were resolved through discussion and/or third party consultation when consensus could not be reached. Prior to performing meta-analyses, tables were produced for each outcome and all data were checked in a third round of verification.

Unadjusted immediate post assessment data was extracted for most studies. However, for a small number of studies the immediate post intervention data did not meet the minimum 12 months post baseline assessment criterion; in these cases team members extracted data at the point closest to the end of the intervention that was ≥12 months post baseline (e.g., intervention duration six months, follow-up six months later). Another small group of studies reported interim results for longer term interventions. Since there was no condition that interventions must be completed to be included in this review, this interim data were extracted.

To answer the adverse effects KQ, the review team selected the more inclusive option and looked for data for all reported adverse events of interest, regardless of whether they were attributed to study participation. In addition, for the meta-analyses they only included mutually exclusive adverse events data, that is, they selected results that reported the number of participants who experienced at least one event in the respective overall adverse effects category. The results from studies that reported the total number of adverse events experienced across all study group participants are captured only in the narrative results of this review.

Assessing Risk of Bias

Arriving at a GRADE rating for a body of evidence requires a preliminary assessment of the risk of bias or study limitations for the individual studies. The two observational studies with no control groups that were included to help answer the adverse effects KQ (narrative results only) were not assessed for methodological quality. However, all RCTs included to answer the KQ of this review were assessed using the Cochrane Risk of Bias tool.

See Chapter 2 in the systematic review for additional information on assessing risk of bias, strength or quality of the evidence, and data analysis.

Methods for Supplementary Report

Methods were identical to the systematic review with the exception of the inclusion in this report of papers that randomized people to weight maintenance interventions following initial successful weight loss.

Methods Used to Formulate the Recommendations

Other

Description of Methods Used to Formulate the Recommendations

Note from the National Guideline Clearinghouse (NGC): The Task Force reviewed primary evidence and commissioned two additional systematic reviews to support the guideline. The additional systematic reviews were prepared by the McMaster Evidence Review and Synthesis Centre Team (see the "Availability of Companion Documents" field).

The Canadian Task Force on Preventive Health Care (CTFPHC) is an independent panel of clinicians and methodologists that makes recommendations about clinical manoeuvres aimed at primary and secondary prevention. Work on each set of recommendations is led by a workgroup of two to six members of the Task Force. Each workgroup establishes the research questions and analytical framework for the guideline.

The development of these recommendations was led by a workgroup of Task Force members, in collaboration with scientific staff from the Public Health Agency of Canada. The workgroup established the research questions, and the analytical framework and clinically relevant outcomes for the guideline, which were incorporated into the search protocol.

Prevention of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses

Analytic Framework and Key Questions

The analytic framework, presented in Figure 1 in the systematic review, includes both prevention and treatment of adult overweight/obesity.

The key question (KQ) and sub-questions considered for this prevention focused review are:

KQ1. Do primary care relevant prevention interventions (behavioural) in normal weight adults lead to improved health outcomes or short-term or sustained weight gain prevention, with or without improved physiological measures?

a. Are there differences in efficacy between patient subgroups (e.g., age 65 years or older, sex, baseline cardiovascular disease [CVD] risk status)?
b. What are the adverse effects of primary care relevant prevention interventions in normal weight adults (e.g., labelling; disordered eating; psychological distress such as anxiety, depression and stigma; nutritional deficits; cost burden)?
c. Are there differences in adverse effects between adult subgroups (e.g., age 65 years or older, sex, baseline CVD risk status)?
d. How well is weight gain prevented or health outcomes maintained after an intervention is completed?
e. What are common elements of efficacious weight gain prevention interventions?

The contextual questions (CQ) considered for both the prevention and the treatment reviews are:

CQ1. Is there evidence that the burden of disease, the risk/benefit ratio of prevention or treatment, the optimal prevention or treatment method/access, and implementation differ in any ethnic subgroups or by age, rural and remote populations, or lower socioeconomic status (SES) populations?

CQ2. What are the resource implications and cost effectiveness of overweight and obesity prevention/treatment in Canada?

CQ3. What are patients' and practitioners' values and screening preferences regarding overweight and obesity prevention/treatment?

CQ4. What are the most effective (accurate and reliable) risk assessment tools identified in the literature to assess future health risk as a result of obesity?

The supplemental questions (SQ) on obesity screening considered for both the prevention and the treatment reviews are:

SQ1. Is there direct evidence that primary care screening programs for adult overweight or obesity improve health outcomes or result in short-term (12 month) or sustained (>12 month) weight loss or improved physiological measures?

a. How well is weight loss maintained after a screening intervention is completed?
b. What is the most effective method of screening for overweight and obesity in adults in primary care?
c. What is the optimal interval/frequency for screening for overweight and obesity in adults in primary care?
d. What is the most effective type of screening (opportunistic versus organized/systematic) for overweight and obesity in adults in primary care?
e. What are the harms associated with screening for overweight and obesity in adults in primary care?

Treatment of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses

Analytic Framework and Key Questions

The analytic framework, presented in Figure 1 in the systematic review, includes both prevention and treatment of adult overweight/obesity.

The KQ and sub-questions considered for this treatment focused review are:

KQ1. Do primary care relevant treatment interventions (behavioural and/or pharmacotherapy) in overweight/obese adults lead to improved health outcomes, short-term or sustained weight loss, or weight gain prevention, with or without improved physiological measures?

a. Are there differences in efficacy between patient subgroups (e.g., age 65 years or older, sex, baseline CVD risk status)?
b. What are the adverse effects of primary care relevant treatment interventions in overweight/obese adults (i.e., any adverse events, serious adverse events [requiring hospitalization or urgent medical care], gastrointestinal events, withdrawal from study due to adverse events)?
c. Are there differences in adverse effects between patient subgroups (e.g., age 65 years or older, sex, baseline CVD risk status)?
d. How well is weight loss or health outcomes maintained after an intervention is completed?
e. What are common elements of efficacious weight gain prevention interventions?

Please see the above section for contextual and supplemental questions.

Supplementary Report Supplemental Question

SQ: What is the effectiveness of weight maintenance interventions on weight related outcomes?

Grading of Recommendations

Recommendations are graded according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. GRADE offers 2 strengths of recommendation: strong and weak. The strength of recommendations is based on the quality of supporting evidence, the degree of uncertainty about the balance between desirable and undesirable effects, the degree of uncertainty or variability in values and preferences, and the degree of uncertainty about whether the intervention represents a wise use of resources.

Rating Scheme for the Strength of the Recommendations

Grading of Recommendations

- Strong recommendations are those for which the Task Force is confident that the desirable effects of an intervention outweigh its undesirable effects (strong recommendation for an intervention) or that the undesirable effects of an intervention outweigh its desirable effects (strong recommendation against an intervention). A strong recommendation implies that most people will be best served by the recommended course of action.
- Weak recommendations are those for which the desirable effects probably outweigh the undesirable effects (weak recommendation for an intervention) or undesirable effects probably outweigh the desirable effects (weak recommendation against an intervention) but appreciable uncertainty exists. A weak recommendation implies that most people would want the recommended course of action, but many would not. For clinicians, this means they must recognize that different choices will be appropriate for each individual, and they must help each person arrive at a management decision consistent with his/her values and preferences. Policy-making will require substantial debate and involvement of various stakeholders. Weak recommendations result when the balance between desirable and undesirable effects is small, the quality of evidence is lower, and there is more variability in the values and preferences of patients.

Cost Analysis

Economic Implications

Given the paucity of direct evidence for prevention, the Task Force did not evaluate the economic implications of interventions for prevention of weight gain in detail. The Task Force is also concerned about the intensity of the effective interventions. A qualitative assessment of the effective interventions for prevention of weight gain found that they tended to be of long duration (≥12 mo), involved personal contact with providers in individual sessions and in some cases group sessions, often included an exercise component, and generally involved multiple sessions, which implies a substantial commitment on behalf of both providers and patients.

The Task Force also did not consider the economic implications of interventions for weight loss in overweight and obesity, but the Task Force searched the literature on resource implications. The review of the available literature found that adults with obesity have higher rates of health service use, and available data are inconsistent about whether behaviourally based obesity interventions are cost-effective. No Canadian modelling studies reflecting costs and effects over the long term were identified.

See the systematic reviews (see the "Availability of Companion Documents" field) for information on cost-effectiveness.

Method of Guideline Validation

Comparison with Guidelines from Other Groups

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The recommendations were revised and approved by the entire Task Force and underwent external review by experts in the field and by stakeholders.

Table 2 in the original guideline document provides a comparison between the current and previous Task Force guidelines, as well as recommendations from other groups.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Rationale for Screening for Overweight and Obesity

Screening directly for overweight and obesity may help guide clinical practice to improve patients' health.

Potential Benefits of Screening

Screening for overweight and obesity can improve patients' health in three ways:

- In adults found to be obese and who have obesity-related diseases, modest weight loss (5% to 10% of total body weight) has been shown to improve control of such diseases and related symptoms and can reduce drug therapy requirements.
- In adults found to be obese but who do not have obesity-related diseases, lifestyle interventions such as starting a regular exercise program can reduce the risk of developing such diseases or can curtail their progression, (e.g., prevention of diabetes in adults with impaired glucose tolerance).
- In adults found to be overweight but who are otherwise healthy, promoting healthy lifestyle practices may prevent the development of obesity.

Screening to Guide Clinical Practice

In clinical practice, an intervention relating to obesity could have two main goals:

- *Prevention of obesity*. Prevention can be considered in individual adults who are overweight and at risk for developing obesity, through interventions aimed at attaining a healthy weight or preventing weight gain.
- *Treatment of obesity*. Treatment interventions can be aimed to achieve weight loss in people who are already obese, thus reducing associated symptoms or burden of comorbidities. An example of this is a weight loss intervention for an obese adult with diabetes that aims to reduce hyperglycemia-related symptoms and reduce the need for glucose-lowering drugs.

Potential Harms

Prevention of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses

No harms of interest to this review were reported. Only six studies mentioned adverse effects, half of which reported no adverse events associated with participation, two showed no significant differences between exercisers and those in the control groups in terms of injuries, falls or serious adverse events, and only one study found significantly more falls and injuries were sustained by those taking part in the exercise program compared to control group participants.

Treatment of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses

Very few studies of behavioural interventions reported adverse effects, and when they did, the harms were usually injuries associated with physical activity and the number of events was typically quite low. Adverse effects were more commonly experienced by participants in pharmacological plus behavioural studies and were significantly more likely to be reported by those taking the active medications.

Qualifying Statements

Qualifying Statements

The views of the funding bodies have not influenced the content of the guideline; competing interests have been recorded and addressed. The views expressed in this article are those of the authors and do not represent those of the Public Health Agency of Canada.

Gaps in Knowledge

- Few studies exist that are designed to help patients of normal weight with or without specific health risks to maintain their weight. Such studies in both solo-practitioner and team-based care delivery models are needed. As such, this guideline was limited in its ability to comment on prevention of weight gain in normal-weight populations, because the data are largely based on trials from mixed-weight populations. As overweight and obesity rates continue to rise in Canada, it becomes increasingly important for practitioners to understand how adults of normal weight can best maintain their health over time, and whether structured interventions beyond standard advice for healthy living should be implemented with normal-weight populations. It is also important to better understand additional benefits in improved functioning and quality of life that could result from interventions. Research is needed on predictors of future health risk associated with weight gain. More research is also needed on patients' experiences with preventive interventions and their preferences about receiving these interventions, in order to prevent weight gain and the associated health risks.
- No evidence on screening for health issues and excess body weight for those who are obese or overweight was identified. There is insufficient evidence to determine effects on overall health, and patient values and preferences for participation in treatment interventions for overweight and obesity. Implementation studies in primary care are needed to assess short-term comparative effectiveness of the available programs, as well as longer-term studies on health outcomes (well-being, disease incidence and mortality) in overweight/obese adults generally and those at greater health risk, including Aboriginal populations and those living in poverty. Given the limited long-term effectiveness of existing therapies for obesity management, and the evolving field of pharmacotherapy, there is a need for further research on the most effective strategies to address this chronic condition.

Limitations

Prevention of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses

The findings of this review are based on indirect evidence; only one study included a normal weight sample; all others contained mixed weight groups. Most of the evidence was taken from studies that could not reliably be assessed for risk of bias. Potential reporting bias was also a frequent concern. Using Grading of Recommendations Assessment, Development and Evaluation (GRADE), the evidence was assessed as low and sometimes very low quality which reduces confidence in the pooled estimates of effect. Results for secondary health outcomes should be interpreted with caution as the review might have missed trials that reported these outcomes but not the primary weight outcomes. Only one study met inclusion criteria to consider maintenance of weight gain prevention and improvements in health outcomes. The review team searched only for papers in English or French.

Treatment of Overweight/Obesity in Adult Populations: a Systematic Review with Meta-analyses and Supplementary Report

Most of the evidence used to answer the key questions was taken from studies that could not reliably be assessed for risk of bias. Potential reporting bias was also identified across a number of outcome/comparison-based study groupings. Using GRADE, the evidence was assessed as moderate and sometimes low quality which reduces confidence in the pooled estimates of effect. Results for secondary health outcomes should be interpreted with caution as the review might have missed trials that reported these outcomes but not the primary weight outcomes. Effect estimates may overestimate adverse events because data were extracted as reported, even when the connection to the intervention was not clear and even if the data included events that occurred during a run-in period. The review team searched only for papers in English or French. For the supplementary report, There was a limited body of evidence on the effectiveness of weight maintenance interventions.

Implementation of the Guideline

Description of Implementation Strategy

Considerations for Implementation

The Task Force has developed a series of tools to help practitioners interpret these recommendations for their patients, which can be found at canadiantaskforce.ca. The Task Force used a rigorous and collaborative usability testing process to develop knowledge translation tools targeting clinicians to accompany this guideline. All tools are informed by feedback from clinicians. They have not been formally

tested in practice.

Patient Values and Preferences

For adults of normal weight who express concerns about weight gain or who are motivated to make lifestyle changes, practitioners should discuss the evidence showing minimal short-term benefit from interventions for weight-gain prevention with their patients and should help each patient make a decision that is consistent with his or her values and preferences. Lifestyle changes focusing solely on increased physical fitness levels, or improved quality of life were not included in the examined trials, but there is increasing evidence that physical fitness modifies the relation between body weight and mortality.

Assessment of Body Mass Index (BMI) and Health Risk

Practitioners should use clinical judgment to decide the frequency with which patients should have their weight and health status assessed.

The Task Force recommends that a noninvasive, validated risk-assessment tool (e.g., CANRISK [Canadian Diabetes Risk] or FINRISC [Finnish Type 2 Diabetes Risk Score]) be used to calculate risk of type 2 diabetes in overweight and obese patients, as per recommendations for screening (the tools are available at www.publichealth.gc.ca/CANRISK and canadiantaskforce.ca/ctfphc -guidelines/2012-type-2-diabetes/clinician-findrisc, respectively). The current guidance on diabetes screening suggests that risk assessment be done at least every three to five years in people at high risk of diabetes developing within 10 years.

Interventions for Overweight and Obesity

Practitioners should be aware of barriers to participation in weight-loss interventions, such as unrealistic expectations, hunger, knowledge and/or skills, sociocultural factors, psychological problems, past stigmatizing experiences and environmental factors. Patients who have tried behavioural interventions without success may benefit from a greater focus on positive lifestyle changes, such as promotion of physical activity and weight-gain prevention.

The most effective interventions were highly heterogeneous with respect to provider discipline, length and format. Therefore, a specific program cannot be recommended; however, the efficacious behavioural interventions tended to be of greater than 12 months duration, included diet and/or exercise and/or lifestyle components, and included group and individual sessions. These interventions are likely appropriate for patients who are ready and able to make substantive lifestyle changes.

Suggested Performance Indicators

Given the limitations of the evidence, no performance indicators were developed for prevention of weight gain in adults of normal weight.

Performance measures for management of overweight and obesity include the proportion of adults with overweight or obesity (in particular those at risk of diabetes), in whom the weight loss interventions are offered or discussed, who participate in structured programs and who achieve weight loss.

See the original guideline document for additional information concerning considerations for implementation.

Implementation Tools

Audit Criteria/Indicators

Foreign Language Translations

Mobile Device Resources

Quick Reference Guides/Physician Guides

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Brauer P, Connor Gorber S, Shaw E, Singh H, Bell N, Shane AR, Jaramillo A, Tonelli M, Canadian Task Force on Preventive Health Care. Recommendations for prevention of weight gain and use of behavioural and pharmacologic interventions to manage overweight and obesity in adults in primary care. CMAJ. 2015 Feb 17;187(3):184-95. [52 references] PubMed

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

1999 (revised 2015 Feb 17)

Guideline Developer(s)

Canadian Task Force on Preventive Health Care - National Government Agency [Non-U.S.]

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Guideline Committee

Canadian Task Force on Preventive Health Care (CTFPHC) Guideline Workgroup

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Financial Disclosures/Conflicts of Interest

Competing Interests

Paula Brauer is a volunteer member of the Canadian Obesity Network, the Canadian Diabetes Association and Dieticians of Canada.

No other competing interests were declared.

Guideline Endorser(s)

College of Family Physicians of Canada - Professional Association

Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Douketis JD, Canadian Task Force on Preventive Health Care, Feightner JW, Attia J, Feldman WF. Periodic health examination, 1999 update: 1. Detection, prevention and treatment of obesity. CMAJ. 1999 Feb 23;160(4):513-25. [128 references]

This guideline meets NGC's 2013 (revised) inclusion criteria.

Guideline Availability

Electronic copies: Available from the Canadian Task Force on Preventive Health Care (CTFPHC) Web site .

Print copies: Available from the Canadian Task Force on Preventive Health Care 3050 RTF, University of Alberta, Edmonton, AB, T6G 2V2, Canada.

Availability of Companion Documents

The following are available:

- Prevention of overweight/obesity in adult populations: a systematic review with meta-analyses. Hamilton (ON): Evidence Review and Synthesis Centre, McMaster University; 2014 Apr 1. 189 p. Electronic copies: Available from the Canadian Task Force on Preventive Health Care (CTFPHC) Web site .
- Prevention of overweight/obesity in adult populations: a systematic review with meta-analyses. Adult obesity KQ1 prevention excluded studies list. Hamilton (ON): Evidence Review and Synthesis Centre, McMaster University; 2014 Apr 1. 67 p. Electronic copies: Available from the CTFPHC Web site .
- Treatment of overweight/obesity in adult populations: a systematic review and meta-analysis. Hamilton (ON): Evidence Review and Synthesis Centre, McMaster University; 2014 Apr 1. 276 p. Electronic copies: Available from the CTFPHC Web site .
- Treatment of overweight/obesity in adult populations: a systematic review and meta-analysis. Adult obesity KQ2 treatment excluded studies list. Hamilton (ON): Evidence Review and Synthesis Centre, McMaster University; 2014 Apr 1. 13 p. Electronic copies: Available from the CTFPHC Web site .
- Supplementary report on evidence from studies of maintenance of weight loss. Supplemental to: treatment of overweight/obesity in adult populations: a systematic review with meta-analyses. Hamilton (ON): Evidence Review and Synthesis Centre, McMaster University; 2014 Apr 1. 26 p. Electronic copies: Available from the CTFPHC Web site .
- Screening, prevention and treatment of overweight/obesity in adult populations. Protocol. Ottawa (ON): Canadian Task Force on Preventive Health Care; 2013 Jan. 23 p. Electronic copies: Available from the CTFPHC Web site .
- CTFPHC recommendation for the prevention and management of adult obesity. Clinician summary. Ottawa (ON): Canadian Task Force on Preventive Health Care; 2015. 1 p. Electronic copies: Available in English and French from the CTFPHC Web site.
- Prevention and management of adult obesity: FAQs for primary care practitioners. Ottawa (ON): Canadian Task Force on Preventive

Health Care; 2015. 1p. Electronic copies: Available in English and French from the CTFPHC Web site.

- Adult obesity recommendations 2015: your patient's BMI matters. Clinical algorithm. Ottawa (ON): Canadian Task Force on Preventive Health Care; 2015. 2 p. Electronic copies: Available in English and French from the CTFPHC Web site.
- Canadian Task Force on Preventive Health Care procedure manual. Ottawa (ON): Canadian Task Force on Preventive Health Care; 2014 Mar. 83 p. Electronic copies: Available from the CTFPHC Web site.
- Grades of recommendation, assessment, development, and evaluation (GRADE) companion document. Ottawa (ON): Canadian Task Force on Preventive Health Care; 2011. 2 p. Electronic copies: Available in English and French from the CTFPHC Web site.

There is a CTFPHC mobile app for primary care practitioners available for download from the CTFPHC Web site.

In addition, suggested performance indicators are available in the original guideline document.

Patient Resources

None available

NGC Status

This summary was completed by ECRI on December 7, 1999. The information was verified by the guideline developer on February 24, 2000. This summary was updated by ECRI Institute on March 13, 2015. The updated information was verified by the guideline developer on April 1, 2015. This summary was updated by ECRI Institute on April 15, 2016 following the U.S. Food and Drug Administration advisory on Metformin-containing Drugs.

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